



V CERAMICS

REFERENCE

Everything about ceramic coating, properly explained.

Ten chapters, diagram by diagram – what a coating physically is, the chemistry families behind it, how hardness and beading are actually measured, and what any of it means for a car driven in India.

10 Chapters

9 Diagrams

No Jargon

Contents

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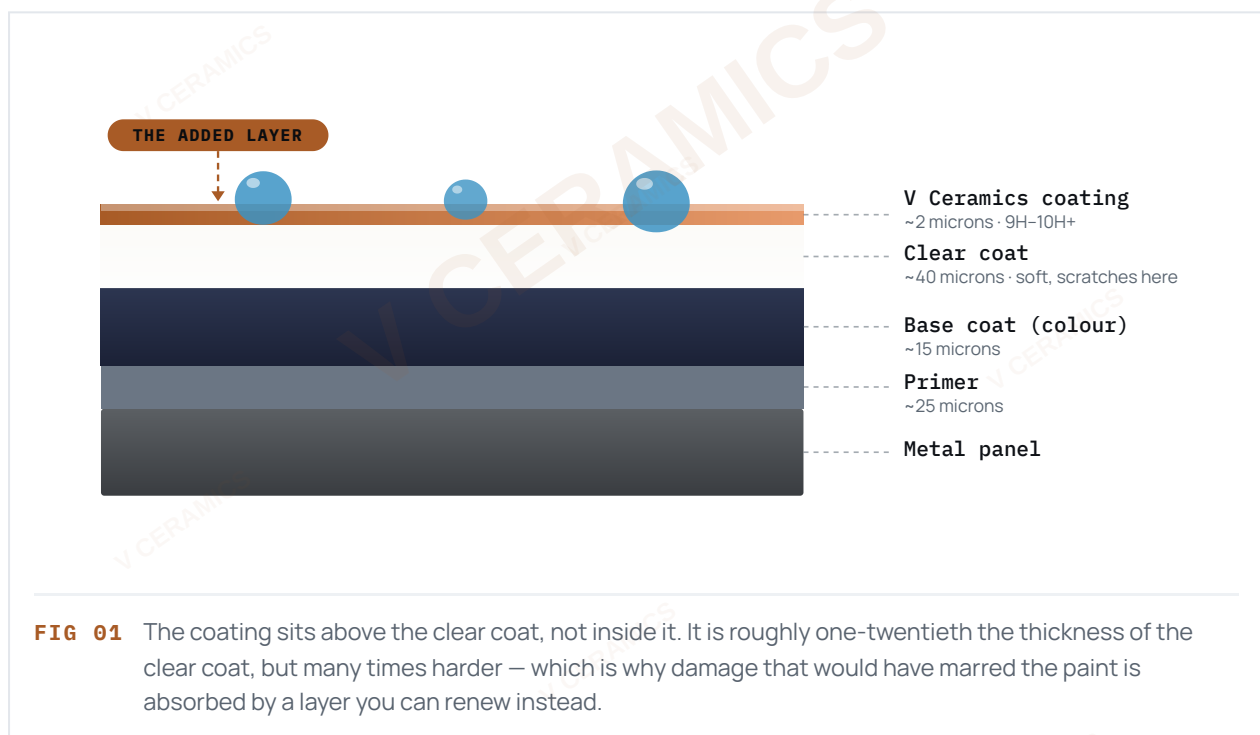
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CHAPTER 01

What a coating physically is.

A ceramic coating is not a wax, a polish, or a "treatment". It is a liquid that chemically bonds to your car's clear coat and cures into a thin, hard, transparent layer of glass-like material — a sacrificial skin that takes the damage instead of your paint.

Your car's paint is already a stack of layers. From the metal panel upward: primer for adhesion and corrosion resistance, base coat for colour, and clear coat — a transparent, relatively soft protective lacquer that carries all the gloss. Every swirl mark, every scratch you can see, every bit of UV fade happens in that clear coat. A coating adds one more layer on top of it.

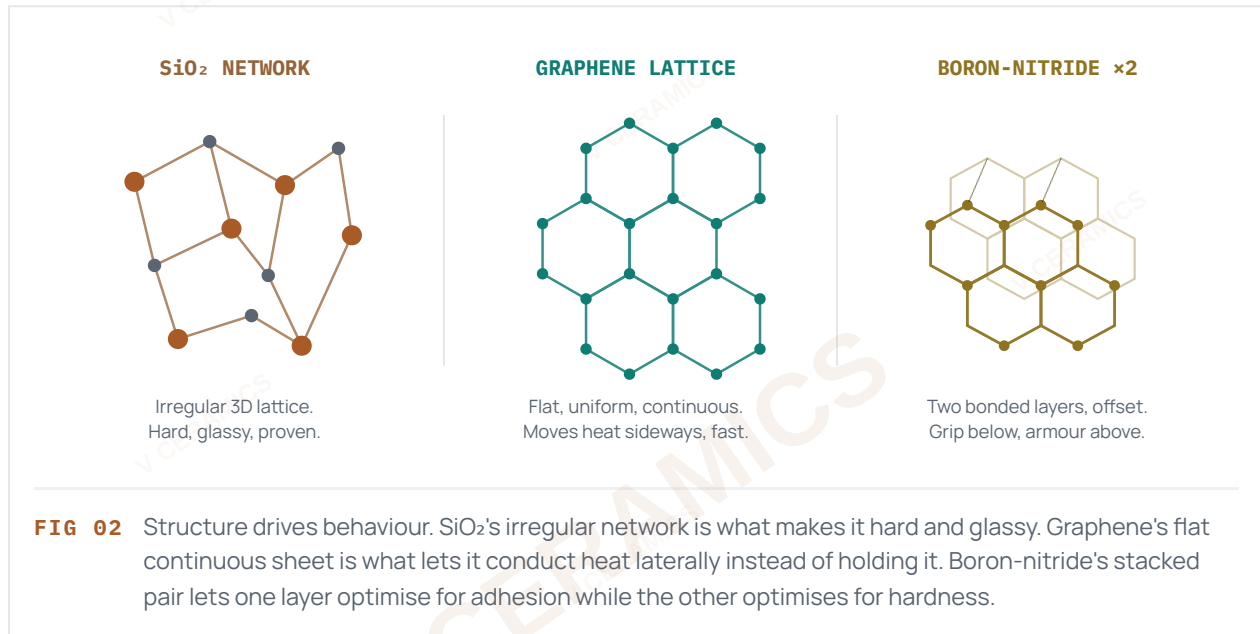


- i** Wax and "ceramic spray" sit **on** the surface and wash away in weeks. A true coating **cross-links** with the clear coat as it cures — it becomes part of the surface, which is why removal requires machine polishing, and why durability is measured in years.

CHAPTER 02

The three chemistry families.

Almost every coating on the market is built on one of three molecular architectures. They are not marketing tiers — they are structurally different materials, and the differences explain everything about how each one performs.



What that means in practice

SiO₂ (silica). The original and still the backbone of the category. Cures into an amorphous glass-like network that is genuinely hard and chemically stable. Used in V-9H Pro; reinforced with siloxane resin in V-10H Elite for better UV and heat stability.

Graphene. A single-atom-thick sheet of carbon in a hexagonal lattice. Its headline property is thermal conductivity — it moves heat across the surface rather than letting it pool. Infused into a ceramic matrix in V-Graphene Apex and V-Graphene Phoenix.

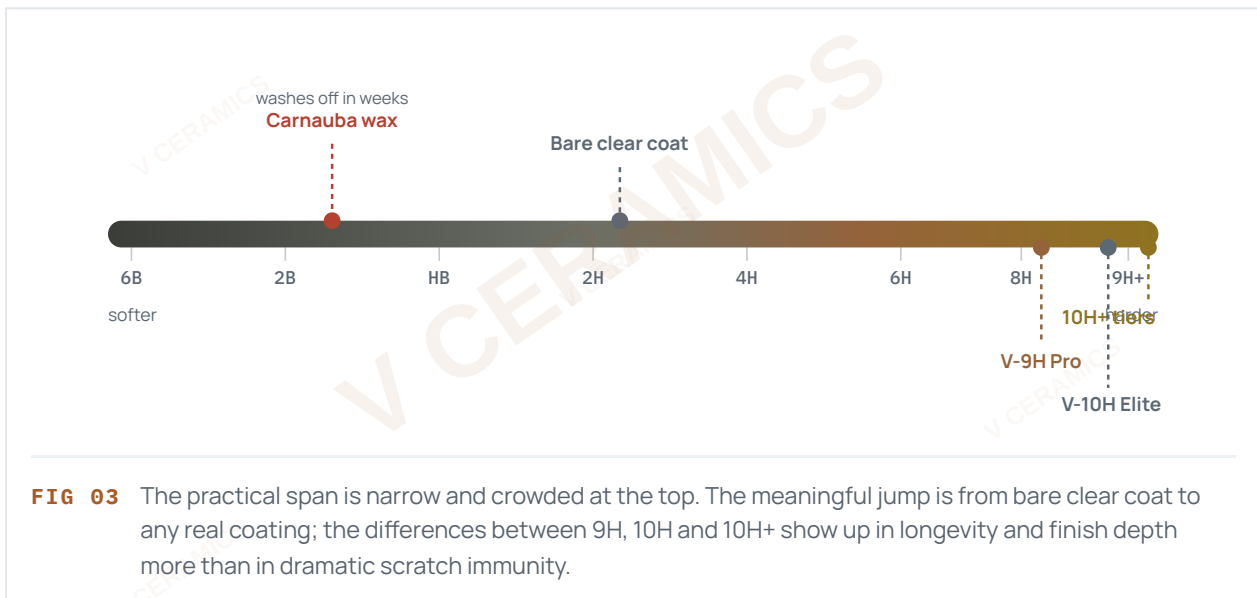
Boron-nitride. Structurally similar to graphene but with different bonding, allowing two distinct layers to be built and bonded together. Used in our flagship V-Borophene Titan as a fine bonding layer beneath a coarser, harder outer shell.

CHAPTER 03

Reading the hardness number.

"9H" is the most quoted and least understood number in this industry. It comes from the pencil hardness test (ASTM D3363) — and knowing what it does and does not measure is the difference between a realistic expectation and a disappointed one.

The test is exactly what it sounds like: calibrated pencil leads, from very soft (6B) to very hard (9H), are pushed across the cured film at a fixed angle and load. The hardest lead that does *not* leave a mark is the rating. It measures resistance to **scratching and marring** — not impact, not stone chips, not dents.



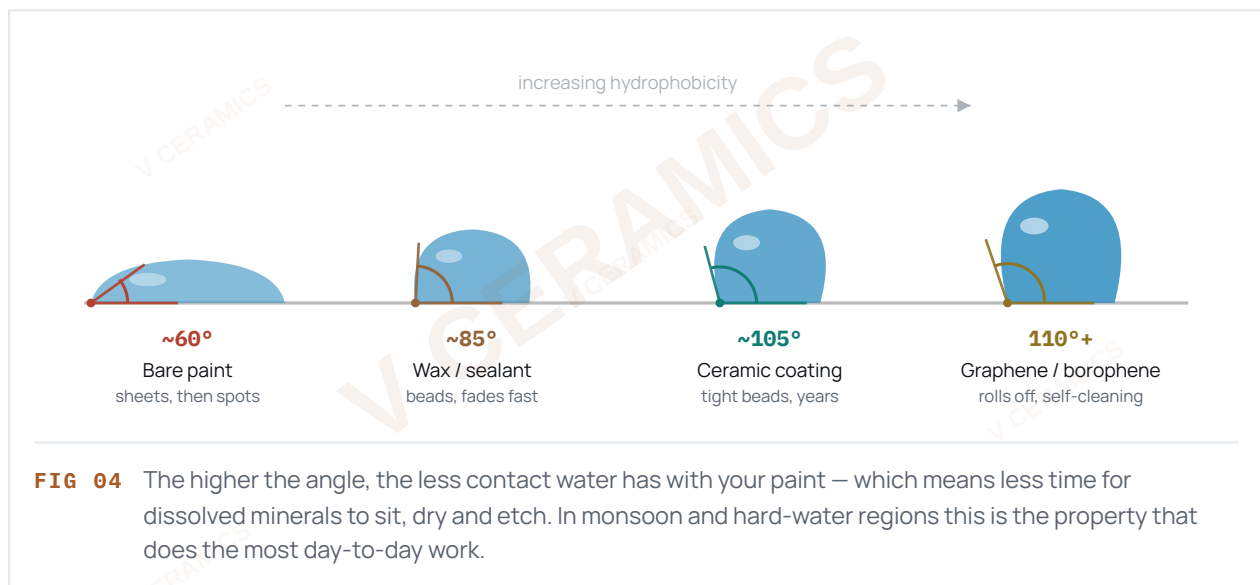
No coating at any hardness is **chip-proof**. Stone chips are an impact event, and the correct product for that is paint protection film (PPF), not a coating. Any brand claiming scratch-proof paint is overselling.

CHAPTER 04

Beading & contact angle.

That satisfying photo of water balling up on a bonnet has a real, measurable number behind it: the contact angle. It is the single best at-home indicator of whether your coating is still working.

Contact angle is the angle where the edge of a water droplet meets the surface. On bare, untreated paint water spreads into flat sheets — a low angle, around 60° . As a surface becomes more hydrophobic the droplet pulls itself tighter into a bead and the angle climbs. Above roughly 90° a surface is called hydrophobic; above 110° the beading is tight enough that droplets roll off and carry loose dirt with them.



Why this matters more in India

Hard water is common across much of India, and hard water leaves mineral deposits when it dries. A high contact angle means droplets are smaller, rounder and more likely to roll off before evaporating — so fewer deposits, fewer water spots, and less chance of the etching that permanently marks a clear coat.

How to test it yourself: rinse a panel and watch. Tight beads that roll off at a slight tilt mean the coating is healthy. Water clinging in flat sheets means the surface is either contaminated (try a

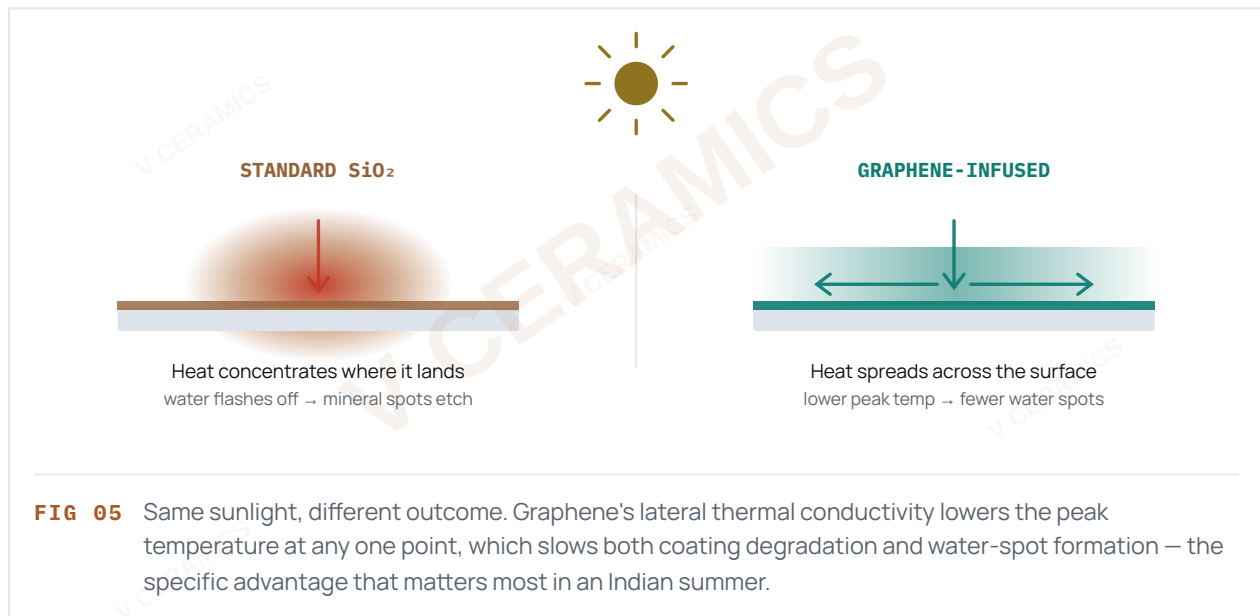
decontamination wash first) or the coating is nearing the end of its life.

CHAPTER 05

Heat, UV & Indian conditions.

This is the chapter that explains why we only sell in India. A coating engineered for a European spring is solving a different problem than one that has to survive a Hyderabad May.

Panel surface temperatures on a parked car in Indian summer routinely pass 65–70°C, far above ambient air temperature. Heat does two things to a coated surface: it accelerates the chemical breakdown of the coating itself, and it flash-dries water before it can roll off — concentrating dissolved minerals into exactly the etching spots the coating exists to prevent.



The three seasons a coating has to survive

Summer (Mar–Jun). Peak UV and surface heat. UV breaks down organic components in weaker formulations; heat bakes contaminants and bird droppings into the surface faster. Rinse promptly, park shaded where possible.

Monsoon (Jun–Sep). Acidic rain runoff, road film, and constant wet-dry cycling. A pH-neutral wash after heavy rain clears the runoff before it sits. This is where high contact angle earns its keep.

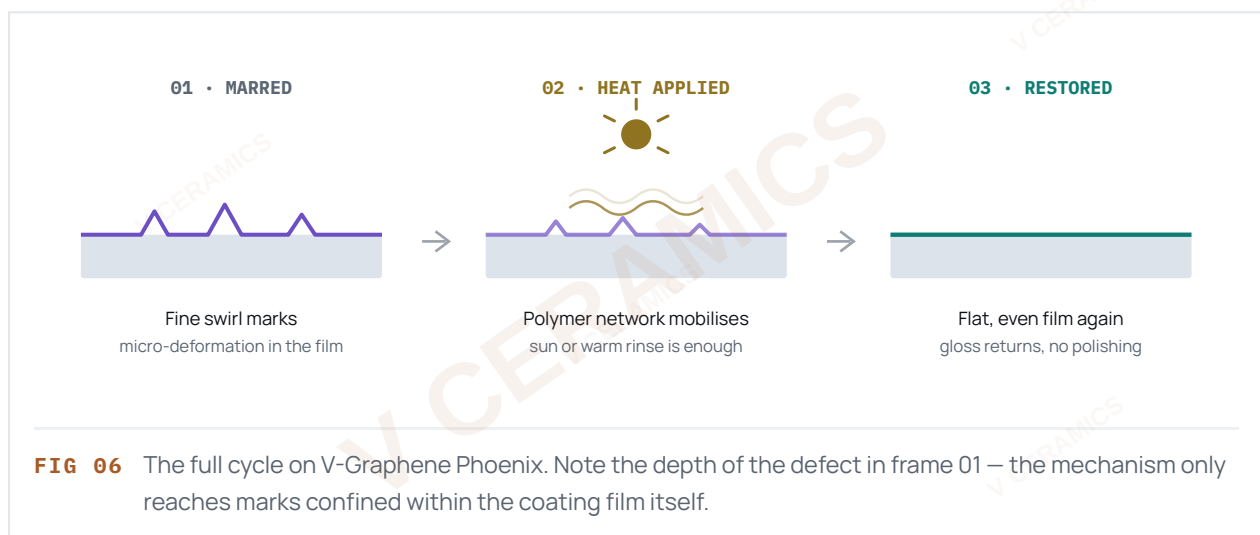
Winter & dust (Oct–Feb). Airborne particulate and construction dust across much of North and Central India settle and bond. Frequent gentle rinsing beats infrequent aggressive washing every time.

CHAPTER 06

How self-healing works.

Self-healing sounds like marketing. The mechanism is real, but it is narrow — and knowing exactly what it does and does not repair keeps expectations honest.

A self-healing coating uses a polymer network with reversible bonds. At room temperature the film is rigid. Add heat — direct sun on the panel, or a warm-water rinse — and the network becomes briefly mobile, enough for surface tension to pull the material back into a flat, even plane. As it cools, the bonds re-set and the film hardens again.



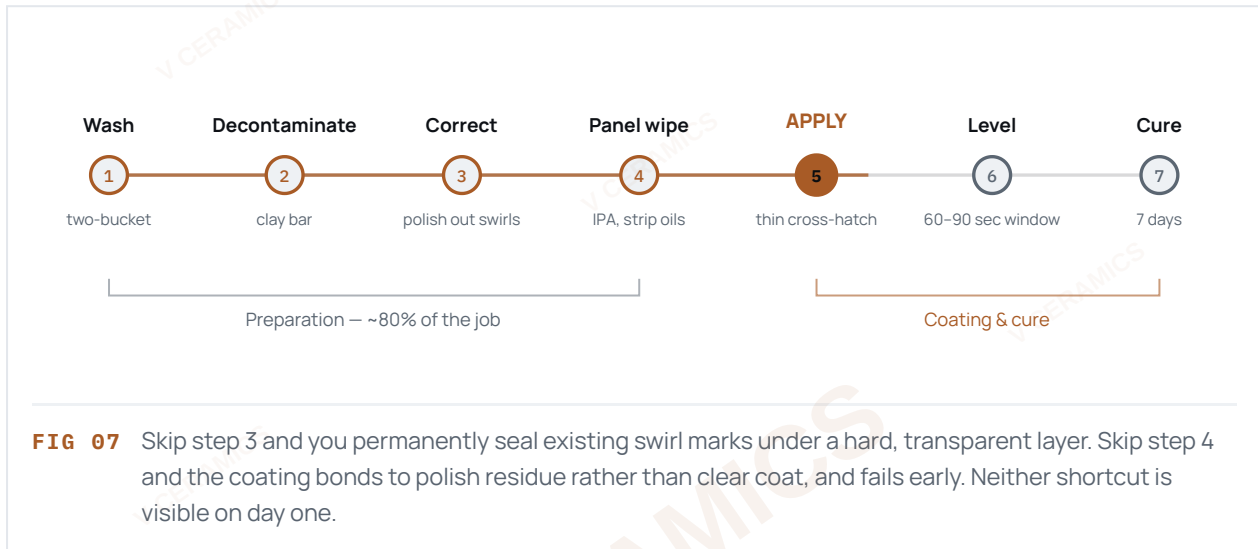
Self-healing addresses **light swirl marks and marring inside the coating layer**. It cannot repair a scratch that has cut through the coating into the clear coat below, and it cannot fix a stone chip. If you can catch a fingernail in it, heat will not fix it.

In our range this is specific to **V-Graphene Phoenix**. It matters most on cars in genuine daily use — the ones that accumulate fine marring from frequent washing, gates, covers and casual parking contact. On a garaged weekend car, the feature does far less work.

CHAPTER 07

The application process.

A coating locks in whatever condition the paint is in underneath it. That single fact is why roughly 80% of a professional coating job is preparation, and only a few minutes of it is the coating itself.



The cure window

After application the coating is tack-free within 1-2 hours, but chemical cross-linking continues for about a week. During that window: keep the car dry and covered for at least 24 hours, avoid rain exposure where possible, and do not wash it for 7 full days. Washing early interrupts the reaction and the film never reaches its rated hardness.

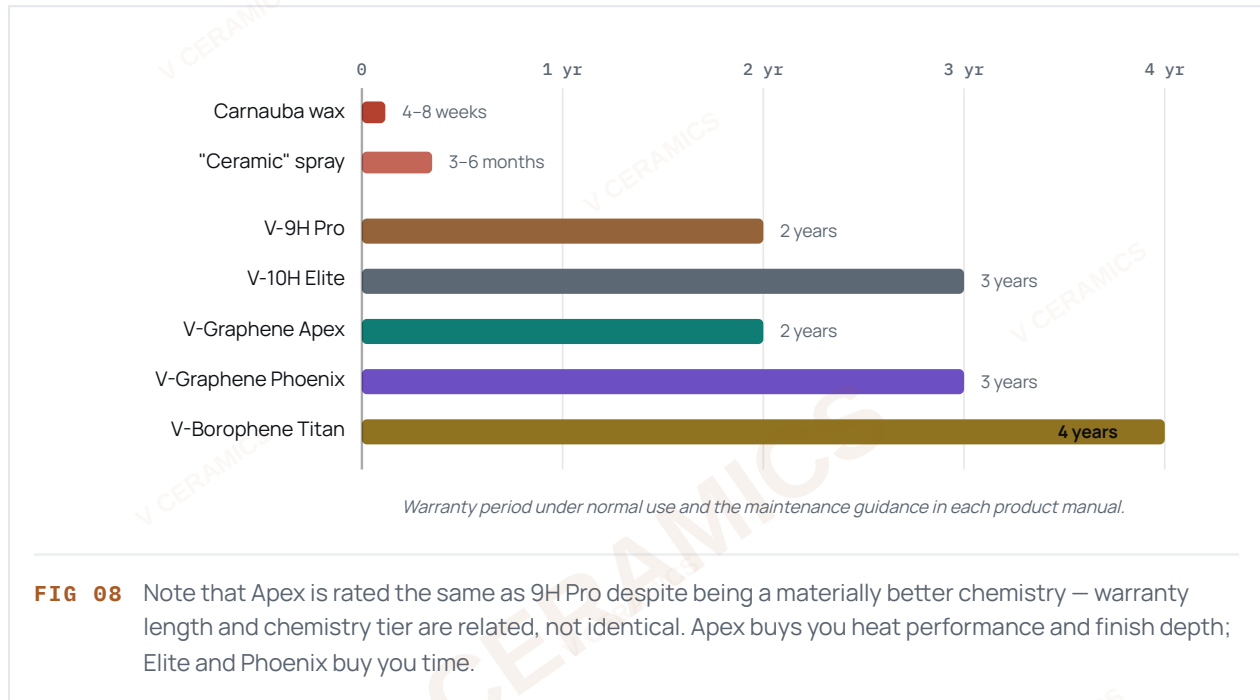


Never apply in direct sun or onto a hot panel. Heat makes the coating flash before you can level it, and the result is streaking and high spots that need machine polishing to remove. Work in shade, on a cool surface, one panel at a time.

CHAPTER 08

How long it really lasts.

Durability claims are where this category gets loosest. Here is the honest comparison across product types, and where our five tiers actually sit.



What actually shortens a coating's life

Automatic brush washes. The single fastest way to destroy any coating. Rotating brushes carry grit from every car before yours and grind it across your surface.

Harsh, high-pH detergents. Dish soap and strong degreasers strip hydrophobic performance. Use a pH-neutral, ceramic-safe shampoo.

Letting contamination sit. Bird droppings are acidic and will etch through a coating given enough time and heat. Remove them promptly — this matters more in summer.

Layering wax on top. Unnecessary, and it masks the coating's own beading with a shorter-lived film. If you want to boost performance mid-life, use a ceramic booster spray designed for the purpose.

CHAPTER 09

Myths vs. facts.

Six claims we hear constantly, and what is actually true.

✗ MYTH

"A ceramic coating makes your car scratch-proof."

✓ FACT

It raises scratch and swirl resistance substantially over bare clear coat. It is not armour. Stone chips and key scratches still damage paint — that is PPF territory.

✗ MYTH

"Once coated, you never have to wash the car again."

✓ FACT

It makes washing dramatically easier and less frequent — dirt releases instead of bonding. It does not eliminate maintenance. Regular gentle washing is what makes a coating reach its rated life.

✗ MYTH

"The ₹500 ceramic spray at the accessory shop is the same thing."

✓ FACT

Those are topper products with some SiO₂ content that sit on the surface and last weeks. A true coating cross-links with the clear coat and is measured in years — which is why it carries a warranty.

✗ MYTH

"Coating will void my car's manufacturer warranty."

✓ FACT

A professionally applied coating is a surface-level layer involving no mechanical or structural modification, so it does not typically affect a manufacturer's warranty. Confirm with your dealership if unsure.

✗ MYTH

"Only new cars can be coated."

✓ FACT

Most coatings we supply go onto used cars. The paint needs correction first, because the coating locks in whatever is underneath — but age itself is not a barrier.

✗ MYTH

"Higher hardness number always means the better buy."

✓ FACT

Hardness is one variable among several. Heat dissipation, UV stability, self-repair and warranty length often matter more for how a car actually gets driven. Match the tier to the use case, not the biggest number.

CHAPTER 10

Glossary.

Every term used across this encyclopedia, our product pages and application manuals, in one place.

SiO₂

Silicon dioxide, or silica. The glass-forming compound at the base of most ceramic coatings.

Siloxane resin

A silicon-oxygen polymer added to reinforce a SiO₂ film, improving UV and heat stability. Used in V-10H Elite.

Graphene

A one-atom-thick hexagonal lattice of carbon with very high lateral thermal conductivity.

Boron-nitride

A layered compound structurally similar to graphene, used in our flagship dual-layer Titan formulation.

Clear coat

The transparent top layer of factory paint. It carries the gloss and takes all the surface damage.

Cross-linking

The chemical reaction where a coating bonds to itself and to the clear coat as it cures, forming one continuous film.

Contact angle

The angle at which a water droplet's edge meets the surface. Higher means more hydrophobic.

Hydrophobic

Water-repelling. A surface above roughly 90° contact angle qualifies.

Pencil hardness

The ASTM D3363 test that produces the "9H" figure — scratch resistance of the cured film.

Swirl marks

Fine circular scratches in the clear coat, usually from improper washing or drying technique.

Marring

Very light surface scuffing, shallower than a scratch. What self-healing coatings can recover.

High spot

Excess coating left unlevelled that cures into a visible streak or patch. Prevented by levelling in time.

Flash

The point where the applied coating begins to set. You must level before it flashes.

Panel wipe

An isopropyl alcohol wipe-down that strips oils and polish residue so the coating bonds to bare clear coat.

Clay bar

A decontamination tool that lifts bonded contaminants a wash alone cannot remove.

Paint correction

Machine polishing that removes existing swirls and scratches before coating.

Cure

The 7-day window in which the coating completes cross-linking and reaches full hardness.

Booster / topper

A ceramic spray applied over an existing coating mid-life to refresh hydrophobic performance.

PPF

Paint protection film — a physical urethane film for impact and stone-chip protection. A different product category.

MOQ

Minimum order quantity. For our white-label programme, 20 bottles per SKU.



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Questions about this product?

Talk to us before you apply it. We would rather answer a question first than replace a panel later.

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BASED IN

Hyderabad, Telangana — delivering pan-India

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